

Bhoj Reddy Engineering College for Women: Hyderabad

Department of Electrical and Electronics Engineering

Lesson plan of faculty member for the academic year 2017–18

Class: III B. Tech

Branch: EEE

Semester: I

Subject: Electrical Machines - III

Lectures per week: 4+1 (Tutorial)

Lecture Number	Topics to be covered	Date (s)
UNIT – I: Synchronous machines and characteristics		
1	Introduction to Electrical machines III	12 July 2017
2	Constructional features of wound rotor	13 July 2017
3	Constructional features of salient pole machines	14 July 2017
4	Tutorial (G3,G2) –Basic definitions	12, 15 July 2017
5	Armature windings, Integral slot and fractional slot windings	17 July 2017
6	Distributed and concentrated windings	19 July 2017
7	E.M.F equation	20 July 2017
8	Harmonics in generated EMF, suppression of harmonics	21 July 2017
9	Tutorial (G1, G3, G2) –Problems related to EMF equation	17,19, 22 July 2017
10	Armature reaction, Leakage reactance	24 July 2017
11	Synchronous reactance and impedance-experimental determination	26 July 2017
12	Phasor diagram,	27 July 2017
13	load characteristics	28 July 2017
14	Tutorial (G1, G3, G2) – Problems related to phasors	24,26,28 July 2017
15	load characteristics	31 July 2017
UNIT – II: Regulation of Synchronous Generators		
16	Regulation by synchronous impedance method	2 August 2017
17	M.M.F method	3 August 2017
18	Z.P.F method	4 August 2017
19	Tutorial (G1, G3, G2) – Problems related to E.M.F method	31 July , 2, 5 August 2017
20	A.S.A methods	9 August 2017
21	Comparison between Z.P.F method and A.S.A method	7 August 2017
22	Salient pole alternators-two reaction analysis	10 August 2017
23	Experimental determination of X_d and X_q (slip test) phasor diagrams	11 August 2017
24	Tutorial (G1, G3, G2) – Problems related to M.M.F method	7,9,12 August 2017
25	Regulation of salient pole alternators	16 August 2017
UNIT-III: Parallel operation of Synchronous Generator		
26	Synchronizing alternators with infinite bus bars	17 August 2017
27	Synchronizing power and torque	18 August 2017
28	Tutorial (G3, G2) – Problems related to Z.P.F method	16,19 August 2017
29	Parallel operation	21 August 2017
30	load sharing	23 August 2017
31	Effect of change of excitation	24 August 2017
32	Tutorial (G1, G3, G2) – Problems related to A.S.A method	21,23,26 August 2017
33	Mechanical power input	28 August 2017
34	Analysis of short circuit current wave form	30 August 2017
35	Determination of sub-transient reactance	31 August 2017
36	Tutorial (G1, G2) – Problems related to A.S.A method	28,30 August 2017
37	Determination transient and steady state reactance's	1 September 2017
UNIT-IV: Synchronous Motors and Power circles		
38	Theory of operation	4 September 2017
39	Tutorial (G1,G2) – Problems related to A.S.A method	4,9 September 2017
40	Phasor diagram	11 September 2017

41	Variation of current excitation	13 September 2017
42	Variation of power factor with excitation	14 September 2017
43	Variation of current and power factor with excitation	15 September 2017
44	Tutorial (G1, G3, G2) – Problems related to A.S.A method	11,13,16 September 2017
45	Synchronous condenser	18 September 2017
46	Mathematical analysis for power developed	21 September 2017
47	Excitation and power circles	22 September 2017
48	Tutorial (G1, G2) – Problems related to A.S.A method	18,23 September 2017
49	Excitation and power circles	4 October 2017
50	Hunting and its suppression	5 October 2017
51	Methods of starting-synchronous induction motor	6 October 2017
52	Tutorial (G3, G2) – Problems related to power circle	4,7 October 2017
53	Revision	9 October 2017
UNIT-V: Single phase Motors and special motors		
54	Single phase motors (introduction)	11 October 2017
55	Single phase induction motor	12 October 2017
56	Constructional features	13 October 2017
57	Tutorial (G1, G3) – Problems related to power circle	9,11 October 2017
58	Double field revolving theory	16 October 2017
59	Double field revolving theory	19 October 2017
60	Elementary idea of cross field theory	20 October 2017
61	Tutorial (G1, G2) – Problems related to power circle	16, 21 October 2017
62	Split phase motors	23 October 2017
63	Split phase motors	25 October 2017
64	Principle of A.C series motor	26 October 2017
65	Stepper Motor	27 October 2017
66	Tutorial(G1, G3, G2): objective questions	23,25,28 October 2017
67	Principle and performance of Universal motor	30 October 2017
68	Shaded pole motors	1 November 2017
69	Revision	2 November 2017
70	Previous question papers	3 November 2017
71	Tutorial: problems related to single phase motors	30 October 1 November 2017
72	Revision	6 November 2017

Text books:

1. P.S.Bimbra, "Electrical Machines", 7/e, Khanna publishers
2. V.K Mehta, Rohit Mehta, "Principles of Electrical Machines", S Chand Publishing
3. S.Kamakashia, "Electro mechanics-III", 3/e, Right Publishers

Name and signature of the faculty: S.Deepti ----

Name and signature of Head of the Department: S.Deepti ----